Form PS: Passive Solar Systems
Utah Renewable Energy Systems Tax Credit
Investment Tax Credit Certification

This form must be completed by all applicants seeking Utah tax credits for a system that uses the heat of the sun to warm the structural components of a building to provide heat to the building. It may also be used for systems that use the sun's heat to circulate air that may cool a building.

Taxpayer Name

Social Security Number or Federal ID Number

Structural elements used to collect or store heat (check all that apply)

Trombe wall ☐ Direct gain mass (wall, floor, etc.) ☐ Water wall ☐

Thermosyphon ☐ Attached sun space ☐

Other (describe)

Describe how your system acquires, stores, and discharges heat for your building.

Describe how your system prevents heat loss in winter and excessive heat gain in summer.

Make and model of windows allowing heat gain

Angle (tilt) of windows allowing heat gain

Orientation (degrees from south) of windows allowing heat gain

Window ratings (see instruction) U-factor SHGC

If your system was designed by an engineer or architect, provide the following information:

Name Phone

License number License Type

Total cost of your passive solar system

Total eligible passive solar material and equipment cost (see instructions)

Total eligible passive solar installation and other costs (see instructions)

Total eligible passive solar cost (sum of equipment, installation, and other)

REMINDER: Documentation of your passive solar system must be attached. See Form A for general documentation requirements. Also see the instructions for documentation requirements that are specific to passive solar systems.

Instructions for Form PS: Passive Solar Systems

In order to be eligible for Utah tax credits, a passive solar system must be purposefully designed to use the structure of a building to collect, store, and distribute heating or cooling to a building and to do so at the appropriate season and time of day. (For example providing heat in winter or at night but not during summer days.) Simply having south-facing windows or tile flooring in a sunny room is not sufficient. All passive solar systems must contain the following in order to be eligible:

1. A means to allow the solar energy to enter the system,
2. A heat-absorbing surface,
3. A thermal storage mass located within the conditioned space of a building,
4. A heat transferral system or mechanism, and
5. Protection from summer overheating and excessive winter heat-loss.

A passive system must also receive an average of at least four hours of sunlight per day during the winter months of December through March and shall be primarily south facing.

Window ratings: U-factor is a rating of how well a window stops heat flow from the air on one side of the window to another. Solar Heat Gain Coefficient (SHGC) is a rating of how much heat energy from the sun is allowed to pass through the window. These ratings are displayed on the stickers that are found on new windows when they are sold. Note that most high-efficiency windows have both low U-factor and low SHGC ratings. For a passive solar system, check window ratings carefully for your south-facing windows. (See below for specific window eligibility requirements.)

Total eligible passive solar material and equipment cost: Eligible costs for a passive solar system include the costs of the following:

1. Trombe wall,
2. Water wall,
3. Thermosyphon,
4. Equipment or building shell components providing direct heat gain, and
5. Any item that can be demonstrated to be a component of a purpose-built system to collect, store and transport heat from the sun.

The cost of ventilation, fans, movable insulation, louvers, and overhangs and other shading devices are eligible provided that they are designed to be used as an integral part of the passive solar system and not part of a conventional building design. The cost of a solarium is also considered to be eligible if it provides heat to the living space of the house in conjunction with a thermal storage mass and a forced or natural convection heat transportation design. Solariums must also be designed to prevent heat loss at night by means of insulation devices. They must also be designed so as to prevent summer heating that would increase the load on the building's cooling system.

The cost of windows and other glazing devices are eligible only when they are part of a passive solar system that uses thermal mass storage and a passive or active heat transportation system to provide heating throughout the building. In addition, windows and other glazing devices are eligible only when they are oriented within 30 degrees of true south and when they are installed with shading devices or overhangs that prevent direct sun from entering the building in the summer while allowing direct sun in the winter. Windows

and other glazing devices must also carry SHGC ratings of 0.50 or higher in order to allow sufficient amounts of heat into the building, but must carry a U-factor rating of 0.35 or less in order to provide sufficient insulation to the building.

The cost of heat transportation systems shall be eligible provided they are part of the passive solar design and will not be used as part of a conventional heating system. Costs for the thermal storage mass of a passive solar system are eligible subject to the following:

1. For a non-loaded structure, 100% of the cost may be eligible.
2. For a loaded structure, 50% of the cost may be eligible.
3. Nothwithstanding (1) and (2) above, the cost of thermal storage mass may not exceed 30% of the total system cost against which a tax credit is calculated.

No tax credit will be given if USEP concludes that the passive solar system does not supply heating when needed or allows more heat loss than gain in the winter months or overheating in the summer months.

Total eligible installation and other costs:
Design and installation costs are eligible, but only those costs associated with the installation of eligible equipment can be credited. The cost (if any) of obtaining an easement necessary for the installation of a renewable energy system is also eligible.

System Documentation: Form A lists general documentation requirements that apply to all renewable energy systems. In addition to those requirements, documentation submitted for a passive solar system must also show that the system meets the eligible cost requirements outlined above. Documentation should also demonstrate that the system is purposefully designed to use the structure of a building to collect, store, and distribute heating or cooling to a building and to do so at the appropriate season and time of day. (For example, providing heat in winter or at night but not during summer days.)